

RHEOLATE[®] 425

NPE-Free Rheological Additive for Latex paints and other Waterborne Systems

GENERAL INFORMATION

RHEOLATE 425 rheological additive is an economical and versatile hydrophobically modified alkali swellable thickener designed to fully or partially replace cellulosic thickeners in a variety of waterborne systems. It is supplied in an easy-to-use liquid emulsion form and is based on NPE-free ingredients to satisfy environmental concerns.

RHEOLATE 425 rheological additive provides a high thickening efficiency in the medium shear rate range and an excellent balance between sag resistance and levelling properties. **RHEOLATE 425** contributes to high shear rate viscosity providing greater brush drag compared to cellulosic thickeners.

CHEMICAL & PHYSICAL PROPERTIES

Composition	proprietary acrylic emulsion in water
Color / Form	milky white
Density	1.076 g/cm ³
Viscosity - Brookfield LVT#1 Spindle at 60 rpm	max 40 mPa·s
Non-volatile content (weight)	30 %
pH	ca. 2.7

These are typical properties not to be used for specification purposes.

APPLICATIONS

- Latex paints
 - gloss
 - semi-gloss
 - matt
- Industrial coatings
- Vinyl chloride latices
- Water-reducible/polyester, epoxy, acrylics, urethanes and others
- Adhesives
- Inks
- Sealants

KEY PROPERTIES

NPE-free

Thixotropic rheology

- develops package viscosity efficiently
- imparts antissettling properties
- reduces syneresis
- gives excellent spray properties
- provides easy brushability
- improves roller application hiding power

Paint Performance

- reduces spattering during roller application
- provides excellent sag resistance
- provides good levelling performance
- improves freeze/thaw stability

Film Properties

- maintains good levels
- provides good block resistance
- reduces early blistering in acrylic systems

Enzyme Resistance

- resists viscosity loss
- re-thickens enzyme-spoiled paint

Incorporation

- low viscosity liquid – easily incorporated
- pH activated
- reduces paint preparation time
- avoids handling viscous liquids or dry powders

Compatibility

- compatible with clay-based, cellulosic and associative thickeners

INCORPORATION

Proper Addition Techniques

In most cases, **RHEOLATE 425** can be added without dilution or pre-neutralisation. It is most commonly added to the let down, but a portion can be incorporated into the millbase if desired. Under slow mixing conditions, dilution with water and/or glycol is recommended. If flocculation is observed, pre-neutralise with ammonia and water (pregel).

Formula for Mill Base Addition

Water	97 %
RHEOLATE 425	3 % on active solids
Ammonia Solution (or AMP95)	to pH 9.0

Proper pH Adjustment

RHEOLATE 425 is an alkali swellable thickener and requires proper pH adjustment, for example, with ammonia or amino methyl propanol for complete activation. Where low-odour and VOC-free is important, NaOH, KOH or Tetra Potassium Pyro Phosphate are alternatives. In a typical latex paint, a pH of at least 8.0 is recommended. In paints where pH has a tendency to drift downward, the use of Calcium Carbonate or Wollastonite extenders will help maintain pH during ageing. A typical **RHEOLATE 425** viscosity response in a latex paint is:

Vinyl Acrylic Matt- 0.5 % Active RHEOLATE 425

pH* Stormer Viscosity

6.0	70 KU
7.0	75 KU
8.0	87 KU
9.0	89 KU
10.0	89 KU

Adjusted with ammonium hydroxide Solution

Viscosity Equilibration

RHEOLATE 425 requires time to activate fully and in most cases, 80 % of the viscosity is achieved after initial addition. Another 10 % develops after one hour and full viscosity is normally reached after 24 hours. In any given paint system this viscosity response is reproducible and predictable for quality control purposes.

When replacing a cellulosic thickener, measure overnight viscosity for comparisons. The initial quality control viscosity specification can be adjusted to allow for the equilibration time of **RHEOLATE 425**.

Equilibration Rates

Stormer Viscosity

	Vinyl	Acrylic
Time	Acrylic Matt	Semi-Gloss
Initial	80 KU	88 KU
1 hour	85 KU	92 KU
24 hours	90 KU	95 KU
1 week	90 KU	95 KU

The time for equilibration depends upon the paint ingredients and each formulation should be evaluated separately. Manufacturing should make allowances for this time/viscosity relationship to avoid possible overdosing.

Heat and Shelf Stability

RHEOLATE 425 produces a stable system when incorporated into most latex paints. However, if excessive viscosity change occurs, check for pH drift – especially in vinyl acrylic and styrene acrylic paints. If viscosity increases excessively, use a more efficient pigment dispersant. KTPP can be used to aid in heat ageing stability.

Separations or Syneresis

RHEOLATE 425 is used as a syneresis control additive when used in combination with urethane associative thickeners. In the rare cases where syneresis is found using **RHEOLATE 425** as the sole thickener, co-thicken with BENTONE EW clay thickener.

RHEOLATE 425 can be combined with:

Associative Thickeners

This overcomes potential syneresis and settling problems.

For best scrub resistance, use **RHEOLATE 425** in combination with RHEOLATE 255 urethane associative thickener.

For improved brush drag/levelling and reduced roller-spatter use with RHEOLATE 278.

Cellulosic Thickeners

Replace or modify cellulosic thickeners to improve low-shear-rate viscosity and eliminate or reduce spattering.

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Clay Based Thickeners

RHEOLATE 425 can be used with BENTONE EW and other clay grades in latex and water-reducible coatings to provide superior thickening efficiency and application properties.

LEVELS OF USE

The typical use levels for **RHEOLATE 425** are 0.3 to 1.0 % (as delivered) by weight in paints or inks and up to 9 % in adhesives and sealants.

HEALTH AND SAFETY

Before using this product please consult our Safety Data Sheet (SDS) for information on safe handling and storage. The SDS can be found on the company website.

STORAGE RECOMMENDATIONS

RHEOLATE 425 should be kept above 4°C (40°F). In the event of accidental freezing, thaw gently, spread portion between glass slides and examine for granules. If found, do not use.

SHELF LIFE

RHEOLATE 425 has a shelf life of 2 (two) years from date of manufacture.

QUALITY ASSURANCE

Since 1992 the company is a holder of the ISO 9001 / ISO 9002 certificates, which guarantees that all operations are conducted according to the stipulated standards.

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V01 Aug. 2018

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